

Claims:

1. A device for transporting flat workpieces in conveyorized processing lines  
5 with a plane of transportation for the workpieces, said device comprising the following features:

- 10 a) at least one pair of rollers that are disposed on a respective side of the plane of transportation and are facing each other for transporting the workpieces, said rollers each having at least one elevation encircling said rollers, and  
b) transport drives associated with said rollers,

15 wherein the ~~at least one~~ <sup>S/</sup> elevation (7) on the first roller (1) of a pair of rollers located on one side of the plane of transportation (12) is ~~offset~~ <sup>staggered</sup> relative to the ~~at least one~~ <sup>S/</sup> elevation (7) provided on the second roller (2) of the pair of rollers on the other side of the plane of transportation (12).

20 2. The device according to claim 1, wherein the elevations (7) annularly or helically encircle the rollers (1, 2).

3. The device according to one of the preceding claims, wherein several axially spaced apart elevations (7) are provided on the at least one roller (1, 2).

25 4. The device according to one of the preceding claims, wherein there is provided at least one bordering elevation (9) at the end of the rollers (1, 2), said bordering elevation annularly encircling the respective one of the rollers (1, 2), having a diameter such and being disposed in such a manner that the workpiece (4), which has a predetermined thickness, may only be deformed by  
30 particles (10) adhering to the rollers (1, 2) to the extent permitted by the elevations (7).

5. The device according to one of the preceding claims, **wherein** there is provided at least one bordering elevation (9) at the end of the rollers (1, 2), said bordering elevation annularly encircling the respective one of the rollers (1, 2) and wherein said bordering elevations (9) are disposed on the rollers (1, 2) of a pair of rollers so as to face each other.

6. The device according to one of the preceding claims, **wherein** the minimum spacing between the rollers (1, 2) of a pair of rollers is set by the spacing between the bearings (3, 5) of the rollers (1, 2) to be such that the workpieces (4) are not deformed beyond the size of the particles (10) adhering to the rollers (1, 2).

7. The device according to one of the preceding claims, **wherein** the spacings between the elevations (7) annularly encircling the rollers (1, 2) or the spacings between respective turns of the elevations (7) helically encircling the rollers (1, 2) are at least 10 % greater than the width of the elevations (7).

8. The device according to one of the preceding claims, **wherein** the height of the elevations (7) ranges from 0.1 mm to 10 mm.

9. The device according to one of the preceding claims, **wherein** the width of the elevations (7) as well as the spacings between the elevations (7) annularly encircling the rollers (1, 2) and the spacings between respective turns of the elevations (7) helically encircling the rollers (1, 2) may range from 2 mm to 200 mm.

10. The device according to one of the preceding claims, **wherein** the rollers (1, 2) are lengthened by at least the length of the bordering elevations (9) at the ends of the rollers (1, 2) and are disposed in a processing line in such a manner that the bordering elevations (9) at the ends of the rollers (1, 2) are located outside of a useful area of a conveying path in the processing line occupied by the workpieces (4).

11. The device according to one of the preceding claims, wherein the elevations (7) have rounded front sides (8).

5 12. The device according to one of the preceding claims, wherein the rollers (1, 2) are made from at least one material selected from the group comprising metal, plastic material and ceramics.

13. The device according to one of the preceding claims, wherein  
10 the rollers (1, 2) provided with the elevations (7) are configured to be formed by axes with rings secured thereon in such a manner that the rings are reliably prevented from slipping and twisting.

14. A method of transporting flat workpieces (4) in conveyORIZED processing  
15 lines with a plane of transportation for the workpieces (4) and with at least one pair of rollers (1, 2), said rollers facing each other and being disposed on a respective side of the plane of transportation for transporting the workpieces (4), the rollers (1, 2) having each at least one elevation (7) encircling the rollers (1, 2), the elevations (7) on the first roller (1) of a pair of rollers being <sup>staggered</sup> offset  
20 relative to the elevations (7) on the second roller (2) of the pair of rollers on the other side of the plane of transportation, and with transport drives associated with the rollers (1, 2),  
the workpieces (4) being supplied to the rollers (1, 2) of the at least one pair of rollers in the plane of transportation, said rollers (1, 2) transporting and finally  
25 releasing them.